

Online International Training Course:

Contribution of Food Science and Technology to the Next Normal of Food Industry

1. Course Title: Contribution of Food Science and Technology to the Next Normal of Food Industry

2. Duration: 1st - 30th July 2021 (32-hour course within 1 month)

3. Background and Rational:

The National Food Institute (NFI) was founded in 1996 by collective support of both government and private sectors. NFI is an independent organization to promote development of Thailand's food industrial sector. The mission of NFI is to provide academic and technical knowledge and update information that can enhance food research and development within the industry of the food sector. At present, NFI has arranged the training course more than 50 courses per year, including food safety standard such as GMP and HACCP training course. In addition, government organizations have confidence in NFI to organize several training courses related to food production and food safety as well as international organizations like the World Association of Industrial and Technological Research Organizations (WAITRO). Also, NFI had organized the training course of "Train the Trainer: Food Safety Management" during 2017-2019 supported by Thailand International Cooperation Agent (TICA) under the Annual International Training Course (AITC) project.

Food Industry is an important industry playing a role to supply food for human consumption and economic development all over the world. This industry has been changing in technology innovation to meet dynamic change of consumer demands. Food science is the study of physical, biological, and chemical makeup of food. It covers chemistry, biology, molecular and genetic, nutrition, and safety related to food processing. Food technology is used to develop and manage the processes by which food is transformed from a raw material to edible goods which is purchased by individual consumers. Therefore, the knowledge about food science and technology could develop food product, food safety, and promote consumer health. At present, Coronavirus 2019 disease (COVID-19) has spread rapidly to many countries and challenged food industry in various aspects including operations, safety, supply chain, emergency responses, incident management, and other unanticipated impacts. Furthermore, the COVID-19 has also changed consumer perception about food products. This training course, "Contribution of Food Science and Technology to the Next Normal of Food Industry" can turn up opportunities for manufacturers and food-related organizations to improve their knowledge and enhance their operations. It may also encourage them to get through the crisis and increase customer trust through adaptation of food science and technology.

As one of the world's leading food producer, Thailand has advanced knowledge in food science and technology obviously seen from the new technology and innovation used for food processing. In addition, Thai government has supported food producers to reach high standards of safety and quality.

Annual International Training Course (AITC) projects to build the network/relationship among food industry of Thailand and other countries as well as strengthen global food industry through knowledge sharing.

4. Objectives:

- To provide knowledge about food science and technology
- To enhance food quality and safety through food science and technology
- To share knowledge about food industry management during and after COVID-19 crisis
- To establish and strengthen relationships among the member organizations involved in food industry

5. Course Content:

5.1 Course Outline

This training course introduces the concept of food science and processing. The main subjects cover food trend, food chemistry, food processing, food additive, food packaging, postharvest technology, logistic for food product, food safety, food product marketing, and food industry management under COVID-19 crisis. Apart from basic knowledge in food processing, participants will develop their skills to evaluate alternative food manufacturing methods.

5.2 Online Learning Instruction

Participants will study via learning management system that contains every content in VDO format. The system will play recorded speakers' lectures with their presentation.

Organizer will give participants a registration ID and password for logging in their individual accounts. Participants can access this online platform anywhere and anytime (during 1st – 30th July). The system can record individual's study history and participants can continue their last content when re-log in. Participant must finish one title before going through next title.

Please note that this instruction is subject to change.

5.2 Practices

- Pre- and post-test in each topic
- Online workshop
- Experience exchange on the food science and technology between speakers and the member organization

5.3 Study Trips/ Field Trips

This training course provides virtual visit of food manufacturers or food-related organizations in Thailand to give participants extensive experience

5.4 Advance Assignments

1) Country Report

Participants must write their country report ranging from 3-5 pages, consisting of their country information such as general information, future trend of the development issue, challenge and opportunities. It is required participants to submit on the opening date for training course.

2) Reading Assignment

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3) Project Assignment

Participants select their local food products as a case study and optimize production processes to improve product quality and safety

6. Participants Criteria

There will be approximately 100 expected participants with criteria as following:

- People in middle management level of government, non-government, and private sector involved in food industry, especially ASEAN countries.
- People who have potential to transfer food science and technology concept and knowledge to their organizations

7. Venue

This training course is online training and operates on learning management system. Testing and assignment creation and distribution is accomplished through this system and other online platforms.

8. Expected Result

- Participants can explain about food chemistry, food processing, food additive, food packaging, postharvest technology, and logistics for food product
- Participants can choose appropriate processes for certain food product
- Participants can apply food science and technology in their own organization

9. Evaluation

Participants are required to attend all activities along this course at least 80 percent of the training hours.

10. Institution

10.1 Executing/ Implementing Agency

Implementing Agency:

National Food Institute

Coordinator:

National Food Institute (NFI),

Ms. Sirinan Suktawee

Specialist, Department of food industry training

2008, Soi Arun Ammarin 36, Arun Ammarin Rd., Bangyeekhan,

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10.2 Collaborative Organizations

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Course Outline

Contribution of Food Science and Technology to the Next Normal of Food Industry

Organized by The National Food Institute (NFI),

Period time 1st - 30th July 2021

| Topic | Detail | Time (Hours) |
|--|---|--------------|
| 1. Orientation Ceremony | <ul style="list-style-type: none"> - Opening Ceremony - Introduction participants to provide information about course outline, online instructional material, testing, and ongoing project submissions. | 2 |
| 2. Trends in Food Industry and Innovation | <ul style="list-style-type: none"> - Impact of COVID-19 on Processed Food Market - Food Innovations and Trends after COVID-19 | 3 |
| 3. Food Chemistry | <ul style="list-style-type: none"> - Introduction to Nutrients (Carbohydrate, Fat, Protein, Vitamin, Minerals, Food Pyramids) - Chemical Deteriorations of Food Products (Non-enzymatic and Enzymatic Reactions) - Introduction to Food Quality - Chemical Hazards Formed During Thermal Processing and Food Allergen | 3 |
| 4. Food Processing | <ul style="list-style-type: none"> - Introduction to Food Processing - Principles of Thermal Processing (Blanching, Pasteurization, Sterilization, Canning) - Undesired Consequences After Thermal Processing - Principles of Non-thermal Processing (UV, Preservatives, and High Pressure Process (HPP)) | 3 |
| 5. Food Additive | <ul style="list-style-type: none"> - Definition of Food Additive - Key Terminology Associated with Food Additives - A Description of The Food Additive Functional Classes - The Labelling Requirements for Food Additives | 3 |
| 6. Food Packaging | <ul style="list-style-type: none"> - Roles of Food Packaging - How to Design Packaging for Food Product - Food Packaging Development, Trends, and Innovation - Sustainable Packaging Innovation | 3 |



| Topic | Detail | Time (Hours) |
|--------------------------------------|---|--------------|
| 7. Food Safety | <ul style="list-style-type: none">- Introduction to Food Safety Standards- Transmission of COVID-19 by Food and Food Packaging- Food Safety Management in COVID-19 | 3 |
| 8. Postharvest Technology | <ul style="list-style-type: none">- The Change of Fruit and Vegetable After Harvest- Postharvest Technology for Fruit and Vegetable- How to Maintain Postharvest Quality of Fruit and Vegetable- Effective of COVID-19 on Postharvest Management in Fruit and Vegetable | 3 |
| 9. Logistics for Food Product | <ul style="list-style-type: none">- Food Supply Chain Challenges During COVID-19- Smart Agri-Food Logistics for the Future- Cold Chain Management | 3 |
| 10. Food Product Marketing | <ul style="list-style-type: none">- Future of Marketing: Impact of Digital Disruption and COVID-19 Crisis- Digital Marketing Strategy : Trend, Concept, and Strategy- Online Marketing for Food Products | 3 |
| 11. Virtual Field Trip | <ul style="list-style-type: none">- Thai Food Heritage Exhibition: The exhibition explains the origins of Thai food from raw materials, cooking methods, the taste of Thai food and the innovation of Thai food- Factory Visit : Virtual visit of food manufacturers or food related organizations in Thailand to give participants extensive experience | 3 |
| Total | | 32 |

Note: Topic should be arranged with suitable of date and speaker.